

REMARKS

Acknowledgement is made of the Examiner's request for a substitute specification. Due to the length of the specification of the present application, Applicants will submit a substitute abstract and specification in a response supplemental to the present response.

In response to the Examiner's rejection of the claims under 35 USC 112, the claims have been amended in order to more particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Specifically speaking, Claim 1 now incorporates the subject matters of Claims 3 and 6. Claims 2, 3 and 6 have been cancelled. Claims 4 and 5 have been amended to state that the cholesteryl groups are introduced by substitution for the hydroxyl groups of the monosaccharide units of pullulan. "Hydrocarbyl" has been amended to "hydrocarbon group". The "polysaccharide-steryl derivatives" has been amended to "pullulan-cholesterol derivatives". In light of the above-discussed amendments to the claims, it is respectfully submitted that the currently claimed invention clearly is cured of all formal defects. Favorable consideration is respectfully solicited.

Claims 1 and 8 have been rejected under 35 USC 102(b) as being anticipated by JP 10017434. Claims 1 and 7-9 have been rejected under 35 USC 102(b) as being anticipated by JP 409095413. Claims 1, 8 and 9 have been rejected under 35 USC 102(b) as being anticipated by JP 408026971. Claims 1, 7 and 8 have been rejected under 35 USC 102(b) as being anticipated by Hamano et al. Claims 1-7 and 9 have been rejected under 35 USC 102(b) as being anticipated by Yamaguchi et al. Claims 1 and 8 have been rejected under 35 USC 103(a) as being unpatentable over Yamaguchi et al in view of Kondo et al or Force et al. Applicants respectfully traverse these grounds of rejection and urge that the presently claimed invention is clearly patentably distinguishable over the prior art cited by the Examiner.

The presently claimed invention is directed to a cosmetic product which is made up of cosmetic components and a pullulan-cholesterol derivative. The hydroxyl groups of the monosaccharide units constituting the pullulan of the pullulan-cholesterol derivatives are substituted, in a proportion of 0.01-20 groups per 100 monosaccharide units, by a specified radical having a cholesteryl group provided at an end thereof. As discussed in the present specification, the present invention provides a cosmetic product which has a high moisture-retaining ability, facilitates lamella formation, is high in film-forming ability, has superior stabilization and low oily feel through the incorporation of the pullulan-cholesterol derivative of the present invention. This results in improvement in the conditions of the skin or hair caused by drying, such as rough skin and defective luster, and provides moisturization of the skin and hair by retaining sufficient moisture therein and gives the skin and hair a superior touch and feel. It is respectfully submitted that the prior art cited by the Examiner does not disclose the presently claimed invention.

JP 10017434 discloses a hydrous composition for cosmetics such as lipstick which comprises hydroxyalkylated cyclodextrin, cholesterol ester, clay mineral and water. This composition is different from that of the present invention in that cyclodextrin is a cyclic polymer while pullulan is a linear polymer. Additionally, the hydroxyalkylated cyclodextrin and the cholesterol ester of this reference are present as a mixture and not as a chemically combined compound in which the cholesteryl is bonded to the pullulan as required in the present invention. Therefore, the presently claimed invention clearly is patentably distinguishable over this reference.

JP 409095413 discloses a preparation for external use on the skin which comprises a clathrate product formed by including a cholesterol ester in a hydroxyalkylated cyclodextrin and a quaternary ammonium salt. An inclusion

product is a material in which one compound is contained or captured within a three-dimensional space formed by the other compound. That is, the cholesterol ester is contained within the cyclodextrin. As the present invention uses the linear polymer pullulan as opposed to the cyclic polymer cyclodextrin and bonds the cholesterol to the pullulan as opposed to forming an inclusion complex, the presently claimed invention clearly is patentably distinguishable over this reference.

JP 408026971 discloses a cosmetic composition comprising a mixture of an acid polysaccharide and sterols. In contrast thereto, the presently claimed invention comprises a specific pullulan-cholesterol derivative in which pullulan, which is a neutral polysaccharide, and cholesterol are chemically bonded to each other through a spacer having a specified chemical structure. As such, the presently claimed invention clearly is patentably distinguishable over this reference.

The Hamano et al reference discloses a cholesterol ester clathrate comprising a cholesterol ester included within a hydroxyalkylated cyclodextrin. As discussed above, the presently claimed invention is not an inclusion product of a cholesterol ester in a hydroxyalkylated cyclodextrin. In the present invention, the cholesterol moiety is bonded to pullulan through a specified spacer or bond. In contrast thereto, the cholesterol ester in Hamano et al is contained within the cyclic hydroxyalkylated cyclodextrin. The hydroxyalkylated cyclodextrin and the cholesterol ester form an inclusion compound through a hydrophobic mutual interaction and have quite different morphic and physiochemical properties from the derivatives of the present invention. In general, an inclusion compound formed by hydrophobic mutual interaction would not sustain its complex form in an environment in which hydrophobic interaction disappears. In contrast thereto, the derivative of the present invention, in which pullulan and cholesterol are covalently bonded by a spacer having a specified structure, maintains its covalent bond even in an organic solvent, such as an alcohol, without decomposing.

Therefore, the presently claimed invention clearly is patentably distinguishable over this reference.

EP 370810 discloses a fatty emulsion stabilized by a polysaccharide derivative which is used in medicine, food and the like, and is disclosed as being a carrier which can embed fat-soluble substances in large quantities. In this reference, the pullulan and the cholesterol are bonded through a spacer having the structure of $-OCH_2CONHCH_2CH_2NH-R$, in which R is cholesterol. In contrast thereto, in the present invention, the spacer for bonding pullulan and cholesterol has the structure $-OCONHR^1NHCOO-R^2$, in which R^1 is a hydrocarbon group and R^2 is a cholesteryl group. As such, there is an unobvious structural difference between the compounds of EP 370810 and the compounds of the present invention.

The fatty emulsions disclosed in the European Patent may use oils and fats, such as fish oil, α -linolenic acid and other easily oxidizable and expensive fats, which are unsuitable for cosmetic use. This indicates that the fatty emulsion is intended to be used in nutrient infusion to be administered to the body via a blood vessel. This is supported by the passage on page 6, lines 1-4, of this reference which teaches that the emulsion should have a particle size of about 0.3 microns in order to stabilize the emulsion.

In contrast to the European Patent, the cosmetic product according to the present invention is not always in the form of a fatty emulsion and does not contain α -linolenic acid. The cosmetic composition of the present invention contains a pullulan-cholesterol derivative in which pullulan and cholesterol are covalently bonded by a specified chemical spacer and other cosmetic components. Therefore, it is respectfully submitted that the presently claimed invention clearly is patentably distinguishable over the European Patent.

The Kondo et al and Force et al references have been cited by the Examiner as teaching the use of oils,

particularly perilla oil and soybean oil, in cosmetic compositions. However, the perilla oil in Kondo et al is contained in an external medicine and not in a cosmetic composition. Moreover, there is no motivation to incorporate the soybean oil of Force et al and the perilla oil of Kondo et al with the composition disclosed in the European Patent. Moreover, as pointed out above, the European Patent uses a different bond to attach the cholesterol to the pullulan. Therefore, it is respectfully submitted that the presently claimed invention is patentably distinguishable over the European Patent in combination with either or both of Kondo et al and Force et al.

Although the Examiner has not made a showing of prima facie obviousness under 35 USC 103 with respect to the presently claimed invention, Applicants respectfully submit that objective evidence is of record which clearly establishes the patentability of the presently claimed invention. As can be seen by the results of the transcription tests for oil/water type milky lotions shown in Table 1, the test for improving artificial rough skin by oil/water type milky lotions shown in Table 2, the practical application test with oil/water type milky lotions disclosed in Table 3, the test for testing the effect of a hair lotion disclosed in Table 5, the transcription test for liquid lip rouge shown in Table 6 and the test for assessing a colored manicure liquid disclosed in Table 7, the presently claimed invention has unobvious superior results. This is clearly unexpected in light of the prior art cited by the Examiner and establishes the patentability of the presently claimed invention thereover.

The Examiner is respectfully requested to reconsider the present application and to pass it to issue.

Respectfully submitted,


Terryence F. Chapman

TFC/smd

FLYNN, THIEL, BOUTELL
& TANIS, P.C.
2026 Rambling Road
Kalamazoo, MI 49008-1631
Phone: (269) 381-1156
Fax: (269) 381-5465

Dale H. Thiel	Reg. No. 24	323
David G. Boutell	Reg. No. 25	072
Ronald J. Tanis	Reg. No. 22	724
Terryence F. Chapman	Reg. No. 32	549
Mark L. Maki	Reg. No. 36	589
David S. Goldenberg	Reg. No. 31	257
Sidney B. Williams, Jr.	Reg. No. 24	949
Liane L. Churney	Reg. No. 40	694
Brian R. Tumm	Reg. No. 36	328
Tricia R. Cobb	Reg. No. 44	621
Robert J. Sayfie	Reg. No. 37	714

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